NEW JERSEY ADULT MOSQUITO SURVEILLANCE

Report for 17 June to 23 June, 2007, Week 25

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Purpose: Samples from New Jersey light traps throughout the state are collected by county mosquito control agencies for use in their IPM programs. A portion of this data (about 82 traps) is sent to Rutgers and re-calculated to show statewide trends in mosquito populations for species of nuisance or health concerns.

Calculations are based on regional distributions, with emphasis on mosquito habitat and land use. Trends will allow a statewide evaluation of changing mosquito populations, in response to control and/or changes in habitat.

This New Jersey Agricultural Experiment Station report is supported by Rutgers University, Hatch funds, funding from the NJ State Mosquito Control Commission and with the participation of county mosquito control agencies in New Jersey.

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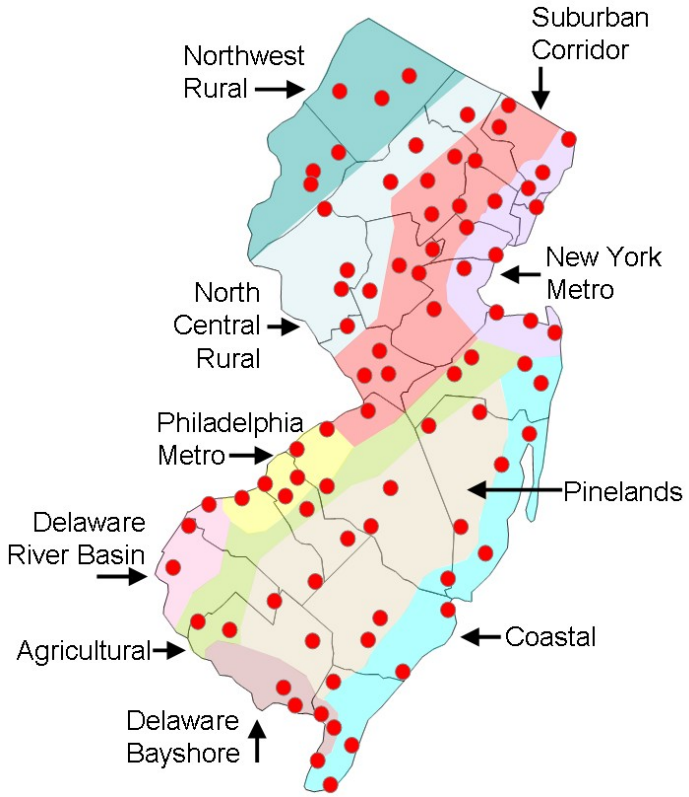


Figure 1: Ten regions selected for the New Jersey Adult Mosquito Surveillance Program overlaid with county borders. Trap locations indicated by red-filled circles.

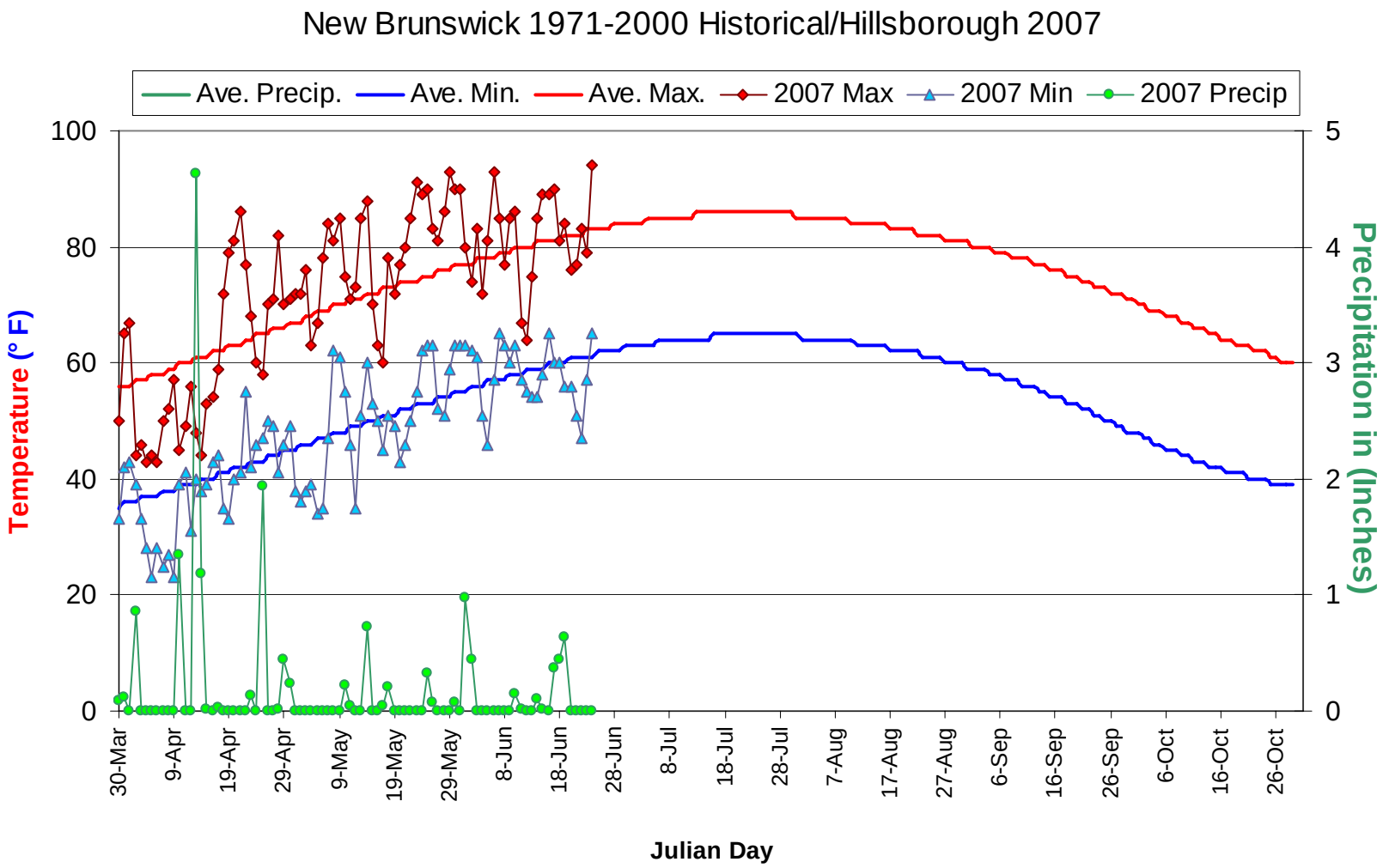
Summary table – Week 25

	Aedes vexans		*Culex* Mix		*Coquillettidia perturbans*		*Aedes sollicitans*	
Region	This Week	Average*	This Week	Average*	This Week	Average*	This Week	Average*
Agricultural	**1.17**	**6.77**	**3.48**	**9.32**	**0.48**	**0.93**	**0.10**	**0.50**
Coastal	**9.87**	**11.44**	**18.02**	**5.21**	**4.13**	**4.97**	**7.17**	**27.12**
Delaware Bayshore	**0.76**	**5.49**	**11.98**	**27.86**	**3.76**	**6.21**	**16.36**	**14.29**
Delaware River Basin	**0.00**	**16.67**	**0.00**	**17.72**	**0.00**	**0.16**	**0.00**	**0.27**
New York Metro	**3.21**	**4.25**	**4.77**	**8.92**	**0.20**	**0.23**	**0.13**	**1.37**
North Central Rural	**0.10**	**0.08**	**0.39**	**1.89**	**0.00**	**0.08**	**0.00**	**0.00**
Northwest Rural	**3.81**	**4.72**	**2.31**	**2.61**	**2.55**	**1.11**	**0.00**	**0.00**
Philadelphia Metro	**5.09**	**7.18**	**7.43**	**6.60**	**3.57**	**5.16**	**0.00**	**0.00**
Pinelands	**1.40**	**2.45**	**1.58**	**2.50**	**1.13**	**2.34**	**0.13**	**0.29**
Suburban Corridor	**1.09**	**6.14**	**1.87**	**3.18**	**0.66**	**4.60**	**0.03**	**0.07**

* Averages represent data from, at most, the previous 5 years.

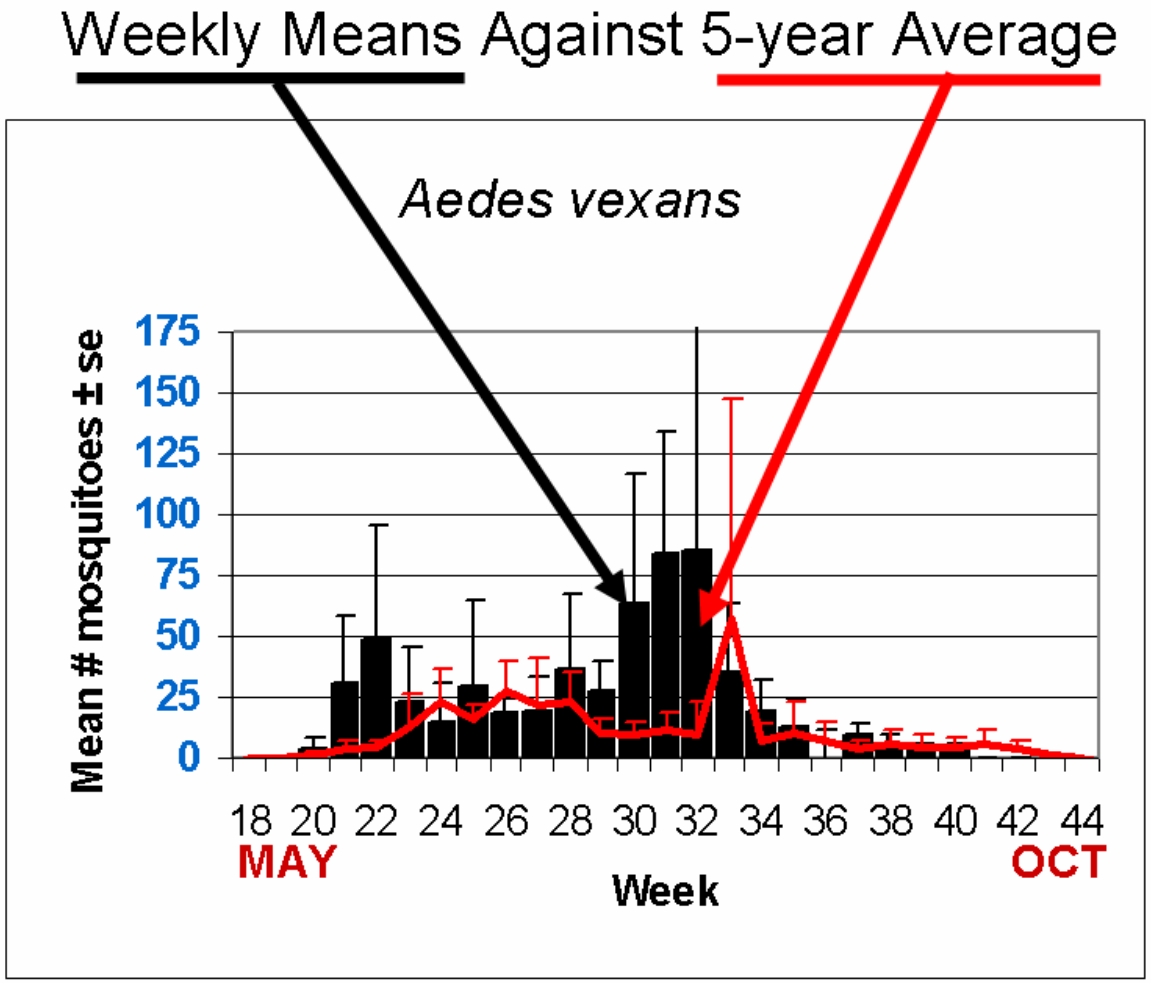
State Summary: *Aedes vexans* activity appears to be within recent historical trends (see Species pages) as does *Culex* Mix for most regions. *Coquillettidia perturbans* is showing activity, particularly in the Northwest Rural region. *Aedes sollicitans* is becoming active in the Coastal region.

Climate Data



This figure shows historical average maximum and minimum temperatures and average precipitation recorded in the New Brunswick, NJ weather station over a recent 30 year period. Also graphed are the current year's minimum and maximum temperatures as recorded at the Hillsborough NJ weather station (a station close to central NJ which recorded all three parameters and was available online at the NJ state climatologist).

The Species Graphs: The species graph pages include a graph with two plots for each of the ten regions defined on the first page (Agricultural, Coastal, Delaware Bayshore, Delaware River, New York Metro, North-Central, Northwestern, Philadelphia Metro, Pinelands, and Suburban Corridor). Below is an example of one graph from one species within one region. The bar plot show the average number of mosquitoes per trap within the region (weekly means) and line plots show the historical trend as the average number of mosquitoes from the previous 5 years (5-year average). In general, historical data are running means from the previous 5 years, but on occasion, will include data from fewer years. Adjustments are made to account for year discrepancies. Data for Week 25 are from Atlantic, Burlington, Camden, Cape May, Cumberland, Essex, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Ocean, Passaic, Somerset, Sussex, Union and Warren counties.



Aedes vexans - Fresh Floodwater Species

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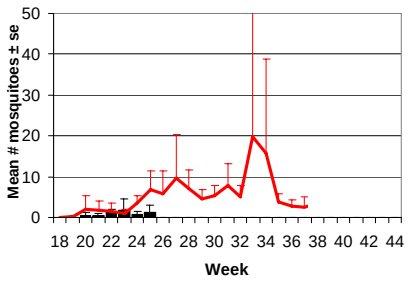
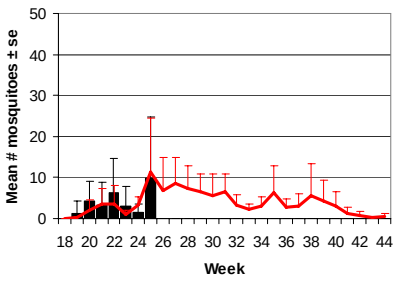
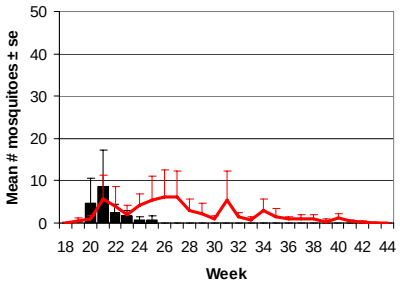
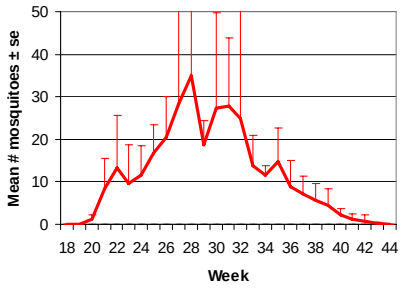
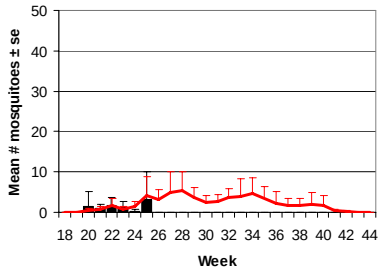
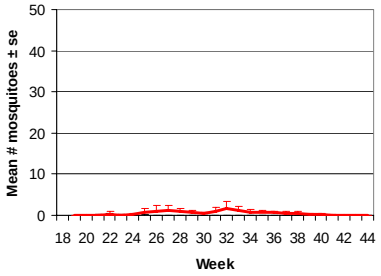
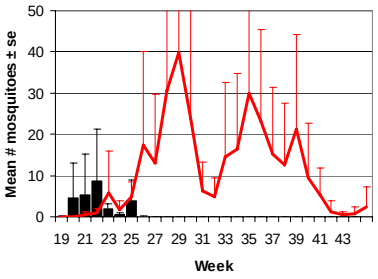
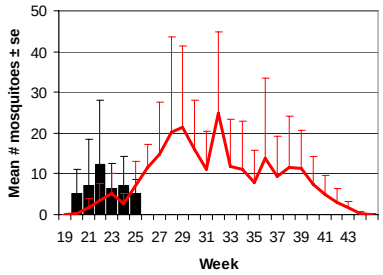
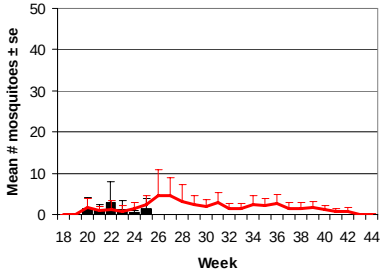
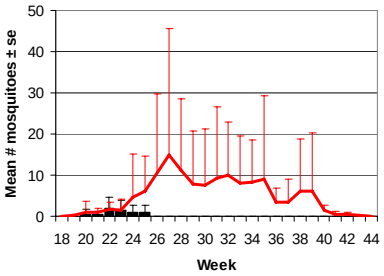
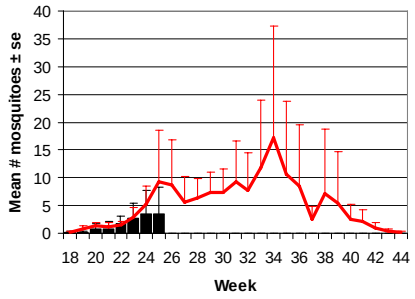
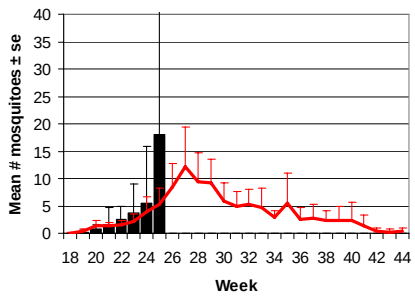
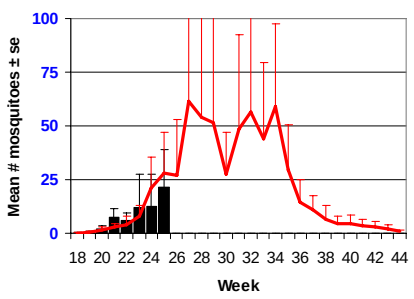
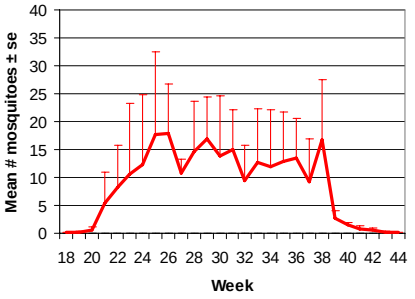
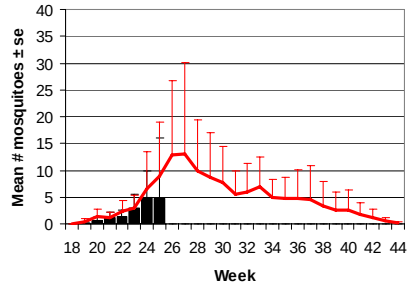
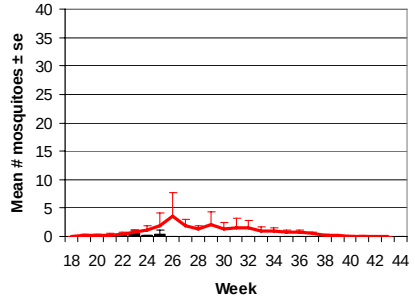
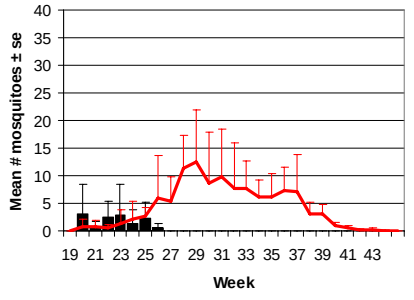
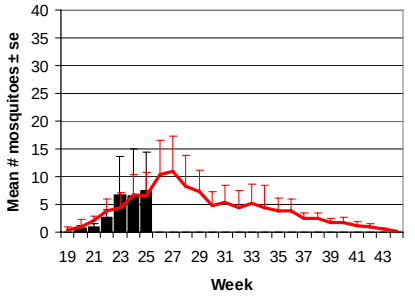
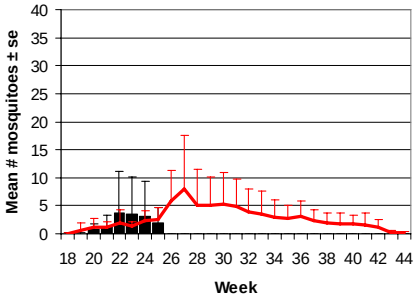
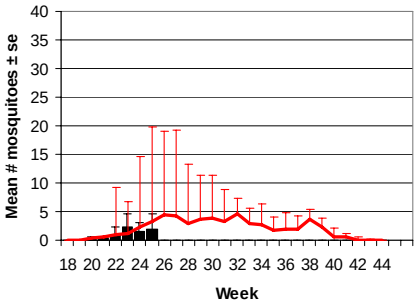
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes vexans* populations throughout most regions appear to be tracking historical means or are well within historical error. Differences from historical trends are not unusual for this species that relies on fresh floodwater events. High error bars can indicate patchy local responses based on patchy rainfall patterns. *Ae. vexans* can disperse.	

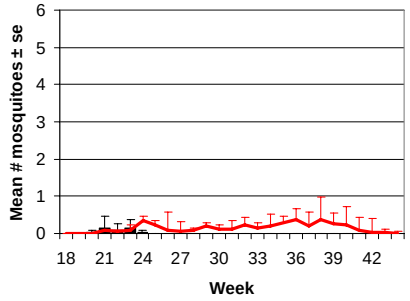
Culex Mix - *Multivoltine Culex Species*

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		As with *Aedes vexans, Culex* species continue to track historical means. The exception is in the Coastal region where significant numbers of *Cx. salinarius* have emerged in southern Jersey. *Cx. salinarius* is an indiscriminant blood feeder that will host-seek well into the fall, taking potential virus loads into an overwintering hibernaculum (Slaff 1990). Additionally, this species may be dissuaded to finish a full bloodmeal on individuals and also to switch species as well. The potential for passing virus from an initial host is present.	

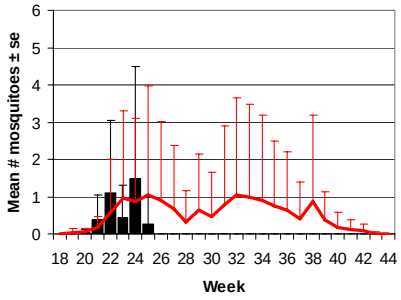
Slaff, M. 1990. The biology of Culex salinarius. Proc. N. J. Mosquito Control Assoc. pp. 71-72

Culiseta melanura – Miscellaneous Group

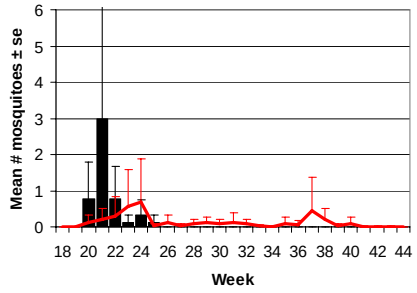
Agricultural



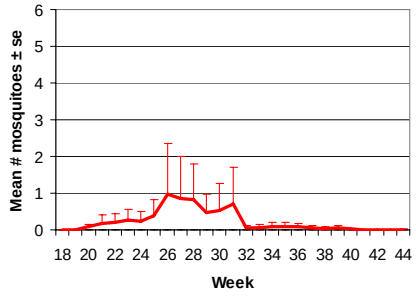
Coastal



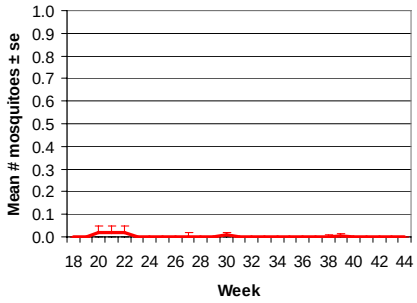
Delaware Bayshore



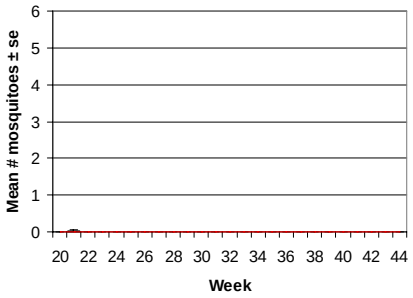
Delaware River Basin



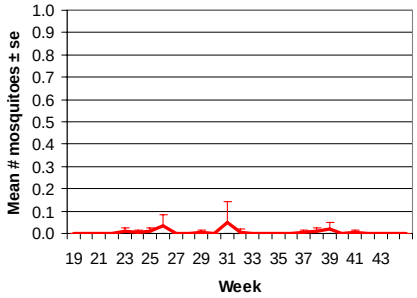
New York Metro



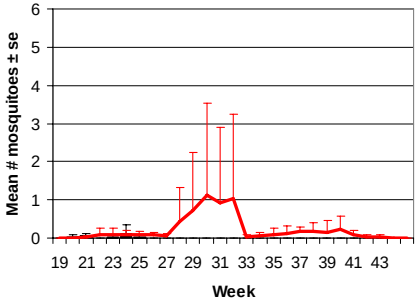
North Central Rural



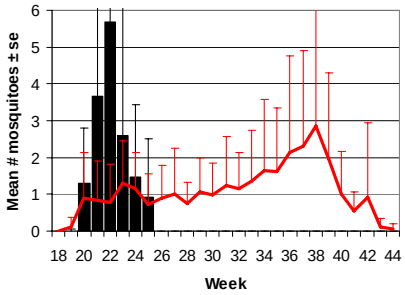
Northwestern Rural



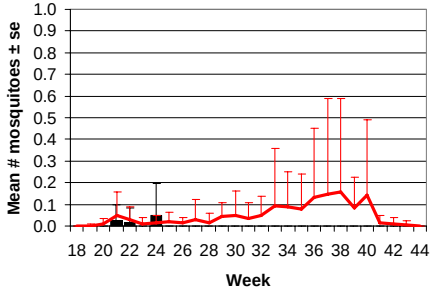
Philadelphia Metro



Pinelands



Suburban Corridor

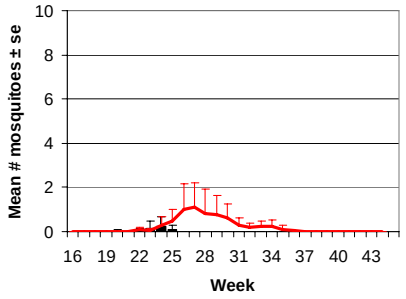
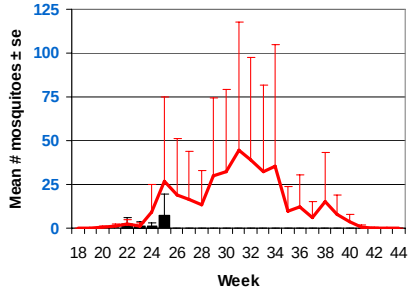
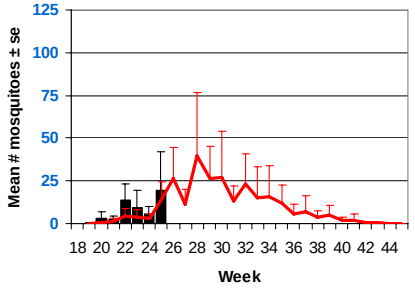
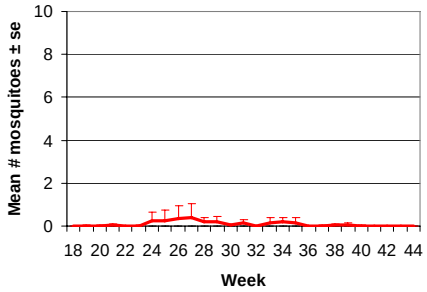
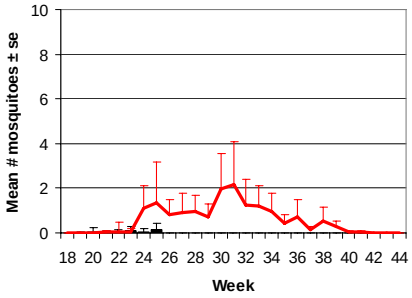
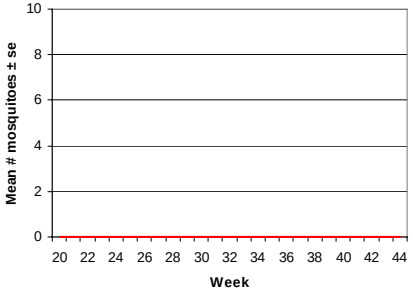
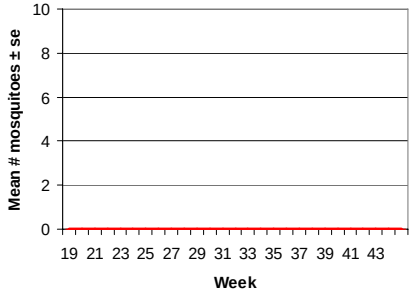
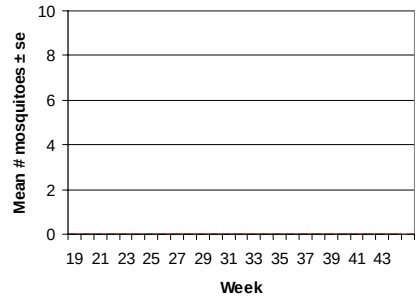
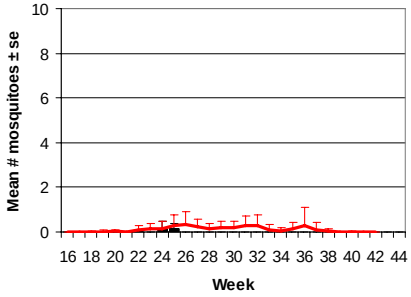
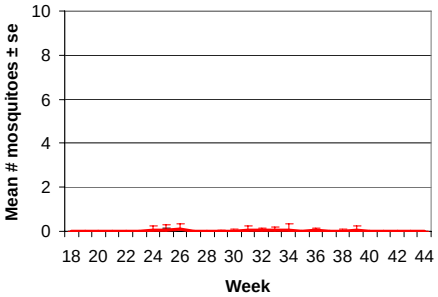


Comments

Culiseta melanura populations in the two regions where previously high numbers emerged have returned toward historical levels. Resting box data also indicate a decline in numbers. Small populations are seen in Agricultural, Philadelphia Metro and the Suburban Corridor. Although the primary role of *Cs. melanura* appears directed toward maintenance of EEE virus levels in avian hosts, a small percentage contained mixed blood meals of both avian and mammalian hosts, including horse blood (Molaei et al, 2006),

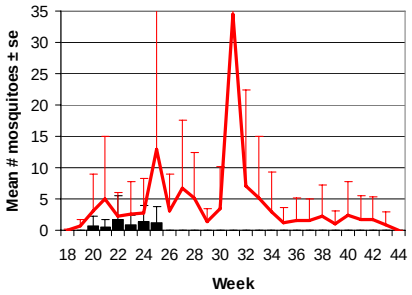
Molaei, G., J. Oliver, T. G. Andreadis, P. M. Armstrong, and J. J. Howard. Molecular identification of blob-meal sources in *Culiseta melanura* and *Culiseta morsitans* from and endemic focus of eastern equine encephalitis virus in New York. American J. Tropical Medicine & Hygiene, 75(6), 2006, pp. 1140-1147

Aedes sollicitans - Salt Marsh Floodwater Species

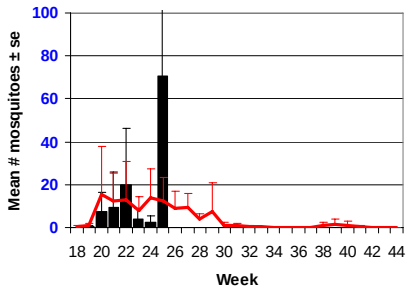
Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Aedes sollicitans* in the Delaware Bayshore appear to be following closely to historical trends, while Coastal populations are taking more time to develop. *Ae. sollicitans* had an earlier than normal start this season, with individuals caught before historical trends began in the Agricultural (southern most trap likely also catching some Delaware Bayshore population) and New York Metropolitan regions. A warm and wet spring, with a timely lunar tide likely contributed to the small yet early emergence.	

Aedes cantator – Multivoltine Aedine, *Ae. sollicitans* type

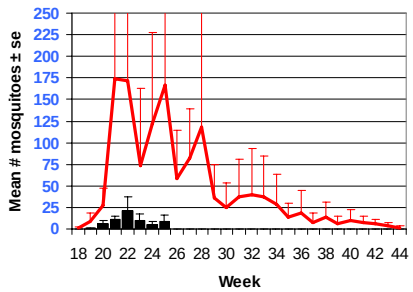
Agricultural



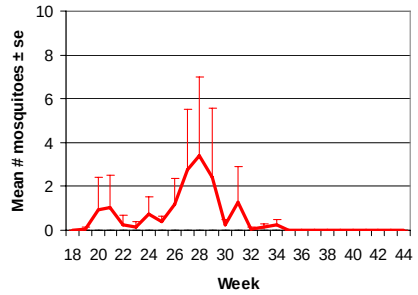
Coastal



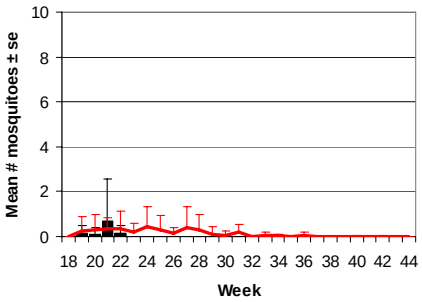
Delaware Bayshore



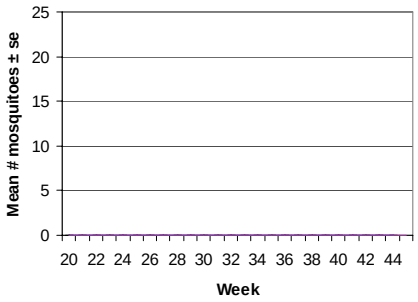
Delaware River Basin



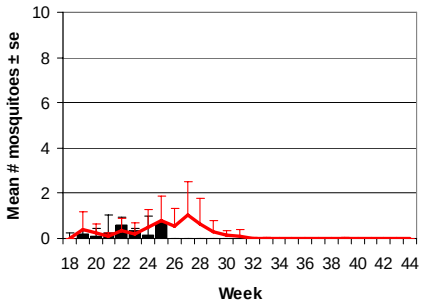
New York Metro



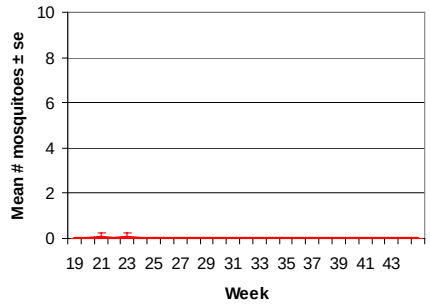
North Central Rural



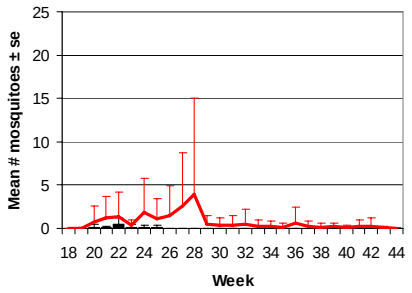
Northwestern Rural



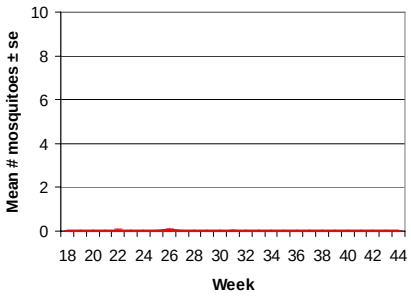
Philadelphia Metro



Pinelands



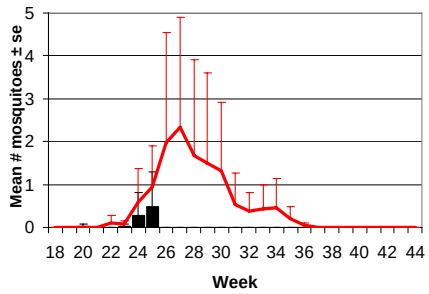
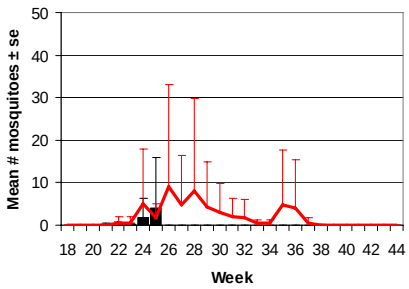
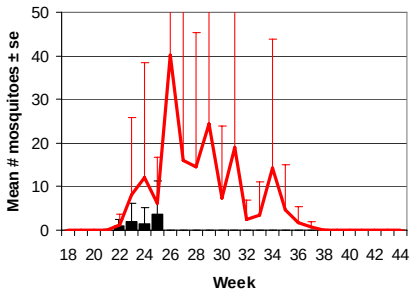
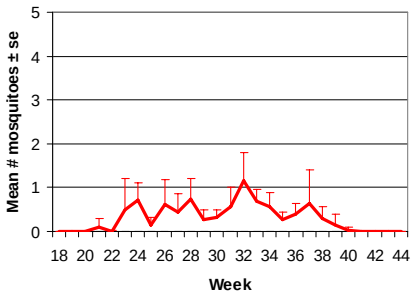
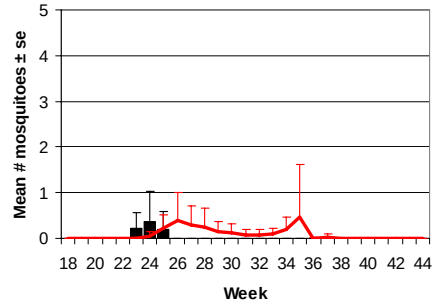
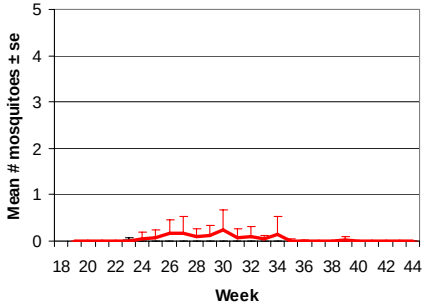
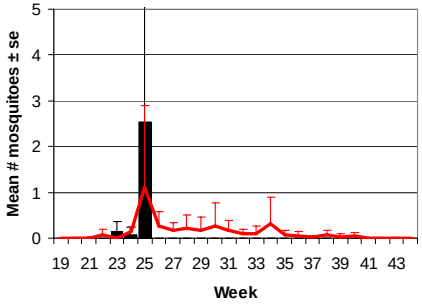
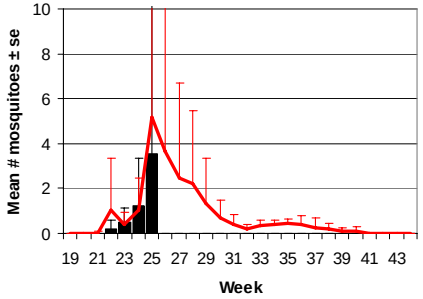
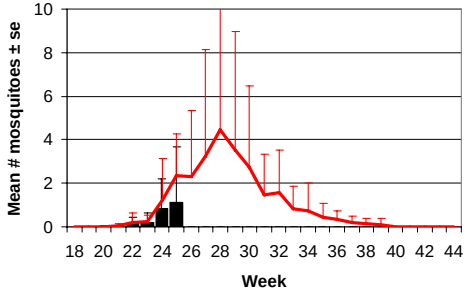
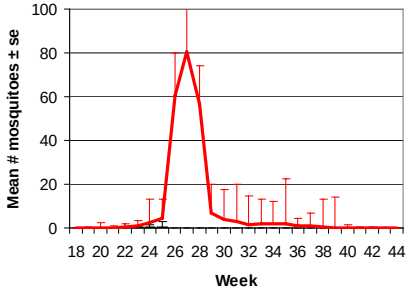
Suburban Corridor



Comments

Aedes cantator populations exploded in Coastal regions at one site (other sites were mixed in their current trend). This migratory species will also include inseminated females who will deposit eggs far from coastal regions. If the habitat is appropriate, however, such as the halophytic textile plant in the Northwest Rural region, then errant populations of *Ae. cantator* can be found well inland.

Coquillettidia perturbans – Unique Life History

Agricultural	Coastal	Delaware Bayshore	Delaware River Basin
			
New York Metro	**North Central Rural**	**Northwestern Rural**	**Philadelphia Metro**
			
Pinelands	**Suburban Corridor**	**Comments**	
		*Coquillettidia perturbans* broods have emerged recently in great numbers, passing historical peaks in the Northwestern Rural region. Other active regions include the Agricultural, Delaware Bayshore and Philadelphia Metro. The Suburban Corridor had unusually large broods occur at one site, but the numbers appear to have dropped considerably. Usually, this is a difficult species to control, due to its use of emergent vegetation to supply oxygen and thus protected from larvicidal applications. Because of the potential for acting as a EEE bridge vector from this indiscriminant feeder, and the *Cs. melanura* activity, this species should be monitored.	